

# 2015 SOUTH FLORIDA Environmental Report



## *At a Glance*

On March 1, 2015, the Florida Department of Environmental Protection and the South Florida Water Management District released the *2015 South Florida Environmental Report* detailing a year of accomplishments in restoration, science and engineering in the Kissimmee Basin, Lake Okeechobee, the Everglades and South Florida coastal areas.

The *2015 South Florida Environmental Report* provides extensive peer-reviewed research summaries, data analyses, financial updates and a searchable database of environmental projects. The full report covers environmental information for **Water Year 2014 (May 1, 2013 - April 30, 2014)** and project/budgetary information for **Fiscal Year 2014 (October 1, 2013 - September 30, 2014)**. The main report, as well as an executive summary, is available online at [www.sfwmd.gov/sfer](http://www.sfwmd.gov/sfer).



## Everglades Water Quality

- **For the first time, some Everglades nutrient-impacted sites show clear signs of improvement.** Similar to previous years' reporting, the most recent five-year total phosphorus criterion assessment indicates that unimpacted portions of each Everglades water conservation area passed all four parts of the State's compliance test. Notably, this water year marks the first year that six stations identified as "impacted" have transitioned to an "unimpacted" status under this test.
- **In Water Year 2014, the 57,000 acres of existing Everglades stormwater treatment areas (STAs) treated more than 1.3 million acre-feet of water,** reducing phosphorus from entering the Everglades Protection Area by 81 percent. To date, the STAs have treated more than 14.8 million acre-feet of water and have retained approximately 1,874 metric tons of phosphorus.
- **Best management practices (BMPs) continued reducing nutrients.** Improved farming practices under the South Florida Water Management District's regulatory source control program on 470,000 acres of agricultural lands south of Lake Okeechobee produced a 63-percent phosphorus reduction in the Everglades Agricultural Area, more than twice the amount required by State law. Farmers in the C-139 basin maintained nutrient discharges within allowable historic levels. To date, BMPs at the source and regional STAs together have prevented approximately 4,582 metric tons of phosphorus from entering the Everglades Protection Area.
- **Mercury levels in Everglades bass and mosquitofish have declined throughout the Everglades.** However, additional reduction is needed as the levels were above federal human health or wildlife criteria at various monitoring sites.

## Restoration Strategies for Clean Water for the Everglades

- **Implementation of the State's Restoration Strategies initiative saw significant progress in 2014.** Massive flow equalization basins (FEBs), which will provide 116,000 acre-feet of additional water storage, are beginning to take shape as well as other key components:
  - **A-1 FEB** is under construction with a completion date of July 2016.

- **L-8 FEB** is under construction with a completion date of December 2016.
- **STA-1 West Expansion** is in design and permitting is underway to create more than 6,500 acres of new treatment area, doubling its size.
- **Canal cleaning demonstration project initiated** (sub-regional source control project).
- **Science plan studies are being implemented** to investigate critical factors that influence phosphorus reduction and treatment performance in the STAs.

## Everglades Ecology and Invasive Species

- **Tree islands impacted by excess rainfall.** Above-average rainfall in Water Year 2014 degraded some tree islands in the Everglades water conservation areas. Small artificial floating islands using commercial peat bags are being tested as a mechanism to reestablish tree island seed bands to restore elevations and improve bird foraging.
- **2014 Wading Bird Report:** An estimated 34,714 wading bird nests were initiated in South Florida during the 2014 nesting season (December to July). This is 28 percent fewer nests than last year's estimate. Above-average rainfall in 2014 likely accounts for the large proportion of nests abandoned.
- **Exotic species control efforts remain vital for regional restoration.** A total of 75 plant species are South Florida Water Management District priorities for control. Although results from interagency control programs for some aggressive plants have been positive, challenges keep mounting as other harmful invasives are introduced and their ranges expand.

## Lake Okeechobee/Northern Everglades and Estuaries Protection Program

- **Projects and initiatives target Lake Okeechobee improvements.** A host of restoration work was completed or moved forward in the past year, including completion and adoption of the Florida Department of Environmental Protection's Lake Okeechobee Basin Action Plan (BMAP) to help meet target phosphorus levels (Total Maximum Daily Loads) in six sub-watersheds north of the lake. Other initiatives include expanding the Dispersed Water Management Program; continuing the Kissimmee River Restoration

Construction is moving forward on the new pump station for the L-8 Flow Equalization Basin, one of several Restoration Strategies projects that are underway. With a completion date of December 2016, the L-8 FEB will be capable of storing 45,000 acre-feet of water. An acre-foot is the volume needed to cover one acre of land with one foot of water or 325,851 gallons of water.





## LEGEND

- CANALS
- NORTHERN EVERGLADES
- EVERGLADES PROTECTION AREA
- STORMWATER TREATMENT AREAS
- MICCOSUKEE INDIAN RESERVATION
- BIG CYPRESS SEMINOLE INDIAN RESERVATION
- ROTENBERGER AND HOLEY LAND
- WILDLIFE MANAGEMENT AREAS

Project; expanding alternative water quality wetland treatment technologies; and continuing a suite of water quality/quantity improvement projects in the Northern Everglades.

- Water managers worked to move water south from Lake Okeechobee.**  
 This reporting period reflects an above-average rainfall year, marked by an aggressive start to the rainy season. In response, Lake Okeechobee rose more than 2½ feet during summer 2013 to its maximum level (16.1 feet NGVD in August) and remained high until October. Water managers, scientists and engineers from the U.S. Army Corps of Engineers, South Florida Water Management District, Florida Department of Environmental Protection and other agencies met weekly to discuss the state of the regional system and to develop operational recommendations to the Corps. Although inflows into Lake Okeechobee were above the historical average, outflows were also significantly higher. And while the east and west coast estuaries received the brunt of the freshwater discharges, extra efforts were made to move more Lake Okeechobee water to the south.
- This year's report incorporates the legislatively required three-year update to both the St. Lucie and Caloosahatchee River Watershed Protection Plans,** including project construction progress, research and monitoring results and strategies for moving forward. Increased storage is a key initiative for the Northern Everglades, and three water farming pilot projects were initiated to test the feasibility of retaining water on fallow citrus fields.

### Kissimmee River Restoration

- On the cover:** The first three phases of Kissimmee River restoration have reestablished flow to 24 miles of river channel and returned flow to more than 7,700 acres of floodplain. Construction activities advanced in the headwaters and lower part of the river, and water management operations effectively maintained continuous inflow to the restoration area, a key restoration goal. Another 9 miles of canal is being backfilled to restore flow to 16 additional miles of the river. Project completion is scheduled for 2019.
- To provide water essential for the protection of fish and wildlife** in the Kissimmee River, its vast floodplain and the Upper Chain of Lakes, the South Florida Water Management District in June 2014 authorized the next step in a public process to reserve water for the ecosystem. Rule development for the Water Reservation is bringing together stakeholders for an ongoing public review of Kissimmee science and technical data, with the goal of adopting a final rule in 2015.

### What is phosphorus?

Although it is a vital nutrient in all natural systems, phosphorus is also a fertilizer component. It flows across the landscape in stormwater runoff (urban and agriculture), harming natural areas by promoting algae growth and an overabundance of non-native plants, crowding out natural vegetation and disrupting food sources and habitats used by native wildlife. The Everglades is naturally a low-nutrient system. Even small amounts of additional nutrients can upset the ecological balance needed by the native plants and animals in the historic "River of Grass."

### What is an STA?

Stormwater treatment areas (STAs) are large, constructed wetlands that use aquatic plants to remove and store excess nutrients (phosphorus) found in the stormwater runoff. This natural process cleanses the water before it is moved out of the STA and into the Everglades or other water bodies.

### What is an FEB?

Flow equalization basins (FEBs) are constructed impoundments designed to capture stormwater runoff and provide a more steady flow of water to the stormwater treatment areas (STAs), helping to maintain desired water levels needed to achieve optimal water quality improvement performance.





## Annual Plans and Reports

- **The South Florida Water Management District tracks and manages agency performance by linking long-term strategic priorities to annual budgets and performance metrics in agency reporting.** Fiscal and Performance Accountability Reports are prepared quarterly, with the fourth quarter report presenting agency accomplishments at the end of the fiscal year.
- **Over the next five years, the District estimates spending \$1.6 billion on projects contained in its Five-Year Capital Improvements Plan.** Currently, the plan includes \$324.4 million dedicated for Restoration Strategies projects with the balance allocated for the refurbishment, replacement, and improvement of South Florida's flood control infrastructure; and other agency water supply and restoration priorities.
- **The South Florida Water Management District is working with the Southwest Florida and St. Johns River water management districts to finalize a joint water supply plan for the Central Florida Water Initiative (CFWI) area.** Based on a 20-year planning horizon, the final draft plan identifies projects expected to meet reasonable-beneficial water needs and to protect natural resources. The CFWI final draft water supply plan was approved in April 2014; the final plan is expected to be approved in late 2015.
- **Reports are also prepared annually to comply with various reporting conditions required by permits** issued to the South Florida Water Management District by the U.S. Army Corps of Engineers or by the Florida Department of Environmental Protection to construct and operate regional restoration projects.

If a specific project is operational, a detailed annual report with monitoring information and compliance with specific permit conditions are provided as a separate appendix. Otherwise, a project status update is presented in the associated chapter.

- **The online SFER Consolidated Project Report Database** at [www.sfwmd.gov/sfer](http://www.sfwmd.gov/sfer) provides a comprehensive update on many South Florida Water Management District projects (activities with start and end dates) and processes (ongoing activities) referenced in the 2015 South Florida Environmental Report. The database enables rapid data sorting, searches and retrieval for efficient information and project management.

The complete 2015 South Florida Environmental Report and Executive Summary are available online at [www.sfwmd.gov/sfer](http://www.sfwmd.gov/sfer).

Find ongoing updates on key restoration projects by checking out this interactive map at [www.sfwmd.gov/restorationprogress](http://www.sfwmd.gov/restorationprogress).

*Below: Non-native invasive plants growing throughout South Florida impede ecosystem restoration and can clog canals and structures used for flood control and water supply. Old World climbing fern (Lygodium), for example, is an invasive vine that grows quickly in remote areas where it is difficult for land managers to control. A moth species (Neomusolima conspurcatalis) is monitored to determine if its caterpillars are an effective biological control for the exotic vine.*



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